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Some Uses of Formal Gardening.

WE have endeavored to show in recent articles that there is no essential hostility between the formal and the landscape styles of gardening; and that, although each piece of ground should be treated according to some well-defined scheme, it is impossible to exclude formal elements altogether from any scheme, however naturalistic. It has also been said that formal and naturalistic elements may sometimes be so commingled that the result will really belong to neither of the rival styles, but to a composite style between the two.

When grounds are quite small, the formal style, in some of its phases, is not so difficult to manage well as the other. And this is not the only reason why it should be more often used in this country. We are not likely to have many country houses so large and stately that they would justify a return to the grand ideals of Le Nôtre, and be appropriately surrounded by spacious formal parks. Nor are such parks suited to American rural surroundings or to the manners of living of even our idlest and wealthiest people. But the great excuse for formality in gardens is the dominance of other formal elements in a given locality; and, therefore, formal designs may rightly be used in small pleasure-grounds, although they would not be adapted to larger parks. In many American towns and summer colonies of cottages or villas formal gardens might produce a much more satisfactory effect than is now attained by attempts at creating rural landscapes in miniature.

In a really rustic colony, where the houses are very simple and the encircling landscape has not been much altered from its original estate, formal gardens, no matter how small and simple, would be too palpably artificial. One would not want to see even the square old New England door-yard, with its Box-bordered beds, reproduced on a Catskill mountain-side under the shade of ancient Hemlocks, with a panorama of wild woodland scenery showing beyond it; nor, again, in front of a rough sea-side cottage on the edge of a beach with its fringe of wild-growing shrubs, vines and flowers. But formal gardens, even of boldly geometrical kinds, would not be out of place on the main streets of our little towns, or the outlying villa-streets of larger towns, or along the fine boulevards, with their big "detached" houses, which give special character to many of our western cities, or in luxurious summer resorts like Newport. At Newport especially the visitor must often wish that some one had been gifted with the instinct to see how charming and how individual his little domain might be made by some regular method of arrangement. Of course, we do not speak of the larger estates which are being established toward the rocky end of the promontory, or even of the more spacious of the grounds which border upon the avenues. But scores of Newport houses, which are called cottages, but, in reality, are large and dignified, and sometimes very pompous villas, or even mansions, stand in very small grounds; and the smallness of these grounds, combined with the self-assertion of the house, points to some degree of formality as the right gardening solution.

What are these grounds to-day? If their proprietors have some taste, they are, perhaps, green little lawns, cut by one or two lines of gravel and encircled by naturalistic groups of trees and shrubs. Then they are pretty in themselves, but not dignified enough, not consciously artistic enough, to befit their place as adjuncts to a big, costly house, or as foregrounds over which, from the house, one sees the rigid lines of street and the symmetrical forms of neighboring buildings. But, very often, no taste at all has presided over their disposition, except a hunger for conspicuous plants as such; and then they are hideous as well as inappropriate—a huddle of trees in clumps and showy shrubs and bits of grass, speckled with exotics recently brought from the greenhouse and loudly confessing their homesickness, or splashed with gaudy pattern-beds of chromo-like vulgarity. The planter's one idea has been to get as much variety as he could within his narrow limits. As a result he has entirely lost the unity which alone can give value to variety; his garden has no character, no individuality; it is a place in which plants are grown, but not a place which, as a whole, makes any impression upon the eye, except to confuse and pain it. Nowhere better than at Newport can we understand what Monsieur André, the French landscape-gardener, meant when he wrote that most people's idea of gardening is "the cleaning up of spontaneous productions," followed by "the accumulation of strange and dissimilar objects." This is to say, that most people go to work in their gardens as they would in their houses, if, after moving out all the old furniture, they should bring in a bric-à-brac dealer's stock and arrange it as a bric-à-brac dealer prefers. Such a house would not be fit to live in; and many small gardens are, for the same reason, not fit to look at.

Nor is true variety evident when, in a place like Newport, we pass a long series of gardens in review. How little their owners really care for them, or even for the plants they contain, is clearly proved, not only by their perpetual lack of design, but by the perpetual repetition of the same small list of showy plants and flowers. Inside their houses these people want an artistic general scheme, worked out with features which shall not be exactly the same as their neighbors'. Outside, they care nothing for any plan, and want, apparently, to be in the fashion by having precisely the same furnishings as the man next door. It would be pleasing, indeed, if a good, formally disposed garden sometimes met the eye among those which reveal no desire to follow any style that can be fitted with a name. Even a bad formal garden would necessitate some plan, some intention, some definite ideal. And where good results are almost entirely lacking, a visible good intention would of itself excite some sympathy.

When villa-grounds are large enough to demand a drive-

way to the door, a straight avenue, symmetrically bordered by trees, might often advantageously replace the road which now winds about on a level soil simply because some one has thought curves always essential, and which, therefore, cuts up the space without the excuse of either increased usefulness or increased beauty. Such an avenue would imply, of course, some measure of formality in its immediate neighborhood; but farther away the design might gradually pass into an informal plantation of trees and shrubs for encircling the boundaries and masking all but the most desirable points of outlook from the house.

Botanical Notes from Texas.—VI.

GONZALES, which is the base of these notes, is a pleasant little city of south-central Texas, the capital of a county of the same name. Its existence runs back into the days when the state was under Mexican occupancy and ownership. The flow of the Guadalupe River, which is near the city, is here rapid, affording good water-power. Gonzales is about half a degree north of the twenty-ninth parallel, and about the same distance west of the ninety-seventh meridian.

Sesbania Cavanillesii—the Coffee Bush, or Rattle Weed—keeps in remembrance the name of Antoine Cavanilles, the Spanish priest and botanist, who studied the plants of southern North America about one hundred years ago. This shrub does not extend far northward, but is very common in the coast country of Texas. Usually a low shrub, it sometimes attains a height of fifteen feet, and, growing with a single stem, is entitled to rank as a tree. It affects damp soils, and often covers low prairies with a miniature forest. When growing in water the immersed part of its trunk becomes enlarged and spongy. The rather large flowers are yellow, with a purplish tinge. These are succeeded by pendent four-angled pods, which persist through the winter. The peas have been used as a substitute for coffee, and hence its common names.

Sesbania vesicaria, a common southern species, is found near Gonzales, extending in Texas to the valley of the Red River at Denison. It is a late annual, blossoming in July, and bearing short, sharply pointed pods which open at the apex. The gap discloses the persistent white lining which envelops the seeds, usually two in number, and gave to the species its earlier name of Glottidium. If I have seen the flowers of this species they are not properly described in the books, which make them yellow and the size of those of our other species. What I have taken to be the flowers of this species are purplish and not more than one-half as large as those of its congeners. S. macrocarpa is also an annual, very strong and tall-growing, becoming ten to fifteen feet high. Its flowers are yellow. The curved pods are sometimes a foot long. It is common throughout the coast region of the Gulf states, extending northward in the Indian territory to the thirty-sixth meridian, or near it.

Oxalis dichondræfolia is a common Oxalis of south-western Texas, with yellow flowers. Its specific name reveals nothing to the student who has not seen a Dichondra. It would have been better to have had all plants so described that they might have been known of themselves and without reference to other genera or species. But this good rule of Linnæus is commonly broken, until now a large proportion of plant-names express nothing of the characters of the plants which they represent. Dichondra repens is also common around the city, and it leaves with those of our Oxalis.

Prunus Caroliniana—the Wild Peach, or Mock Orange—is one of the best-known and handsomest of southern ornamental trees. It is native to all the coast states from North Carolina to this meridian, or near it. It is common as a street and lawn tree in most of Texas, and its shining evergreen leaves render it conspicuous and easily recognized. The small white flowers are borne in stout, erect racemes from the axils of the persistent leaves, and so on the wood of the previous year. They begin to appear in the extreme south as early as February. The cherries, for it is a Cherry, and not a Peach, are produced in such abundance as often to bend the branches on which they grow. They are black when ripe, larger than those of any other of our wild cherries, somewhat bitter, rather dry and persist until after the next anthesis. A tree with evergreen leaves, loaded with a profusion of white flowers and bending beneath the weight of the previous year's black fruit, presents a unique and very handsome appearance. It seems that the leaves of this species have been justly accused of causing the death of cattle, when eaten by them. The species pleads in extenuation of its guilt that the cows, when they were hungry, ate too many of its wilted leaves. A cold-water infusion of the bark of this tree is used in intermittent fevers, and as a tonic some people prefer a whisky infusion of the cherries themselves.

Xanthoxylum Fagara, the Prickly Ash, is much smaller than either of its more northern and eastern congeners, which it otherwise closely resembles. The main rachis of the compound leaf is winged between the pairs of leaflets. This species is the "Correosa" of Mexicans. The X. Clava-Herculis, southern Prickly Ash, Toothache-tree, or Pepper-tree, extends as far west at least as the ninety-eighth meridian.

The handsome Clitoria Mariana, remarkable among our leguminous plants for its very large purple flowers, is common as far west as the meridian of this city. Dysodia chrysanthemoides, the Fœtid Marigold, or Yellow Dog Fennel, is a strong, but not very ill-scented, composite, common in central Texas and northward, and is moving eastward. In the fall this species lengthens its rays, paints the scales of its involucre purple, and makes quite a successful effort to be handsome.

Salvia farinosa is abundant here. Its bright blue flowers contrast pleasantly with its leaves, calyces and stems, which are whitened by a dense hoary pubescence. Cucurbita fœtidissima is very common on the prairies from near the Gulf to Nebraska. This species, too, is traveling eastward. It is already in Arkansas at Texarkana, and in Missouri at Kansas City. The yellow fruit is as large as a small orange. Mexicans call it "Calabacilla."

Clematis Drummondii is one of the commonest plants of southern Texas. It extends northward nearly across the state and far westward. It clambers over any support within its reach, and when it finds no support it often spreads itself out over damp places in the prairies. Our species is very conspicuous in fruiting-time by the long plumose tails of its carpels. The tails are often purplish, when they are handsome.

Lantana Camara, "Frutilla" of Mexicans. This southern species is common in cultivation, and wild from this meridian westward. It is remarkable for its strong spicy odor and for the changing colors of its flowers. Dr. Havard charges this species with the grave offense of poisoning sheep and cattle.

Kansas City, Kan. *E. N. Plank.*

Notes on the Forest Flora of Japan.—XI.

IN eastern North America the small family of the Sabiaceæ has no representative, although Meliosma, which is mostly a tropical and sub-tropical Asiatic genus, also occurs in Mexico and Central America. In Japan there are three species of this genus, of which only one, M. myriantha, attains the size of a tree. This species grows sometimes to the height of twenty-five or thirty feet, and produces slender trunks and wide-spreading branches; its large thin leaves, which are sometimes eight inches long and three inches broad, of a light delicate green, are its chief attraction as a garden-plant, for the flowers of Meliosma are minute, and the terminal panicles in which they are gathered are loose and long-branched. Only a small portion of the flowers are fertile, so that the fruit, which is a small red berry-like drupe, is sparse and scattered on the clusters, and not at all showy. This plant is new, I believe, in cultivation, and its behavior in our climate will be watched with interest. It can hardly be hoped, however, that Meliosma myriantha will succeed in New England, as in Japan it does not range far north, and in central Hondo, where, although widely distributed, it is not common, it does not rise much above two thousand five hundred feet over the sea-level.

From the Rhus family we miss in Japan the Smoke-tree (Cotinus), a familiar European and western Asiatic type, represented, too, in eastern America by one of the rarest and most local of all our trees. Of the true Rhuses we have in eastern America a dozen species, including three small trees, while in Japan there are five indigenous species, and among them three which can properly be considered trees. The Japanese Lacquer-tree (Rhus vernicifera), which has played a conspicuous part in the development of the mechanical arts of China and Japan, and which is certainly the most valuable plant of the genus to man, is not a native of Japan, where it was brought long ago from China, and although much cultivated, especially in north-

ern Hondo, I saw no indications that it is growing spontaneously or anywhere establishing itself in the forest.

The Japanese Rhuses are not as ornamental in the autumn as our Sumachs, as none of them bear fruit covered with the long red hairs which give to the fruit-clusters of the American plants their dense appearance and brilliant color; but the flowers of the Asiatic Rhus semi-alata, a common small tree distributed from the Himalayas to Japan, which are white, and produced in large terminal panicles, are much more beautiful than the yellow-green flowers of any of our Sumachs, and in August and September, when this tree blossoms in Japan, it is a striking object in the shrubby coppice-growth which so often covers the low mountain-slopes. In autumn Rhus semi-alata is one of the most brilliantly colored plants of the Japanese forest; and very few Japanese plants succeed as well in our climate. It is from a gall formed on the leaf of this tree that the dye with which married women in Japan discolor their teeth, as a sign of domestic bondage, is obtained.

Economically a more important tree, as from it the Japanese obtained their principal supply of artificial light before the introduction of American and Russian petroleum, Rhus succedanea is less interesting in flower, at least, than Rhus semi-alata; it is a southern species, still much cultivated on the southern islands, and in Tōkyō seen only in gardens. In habit, although it grows to a larger size, and in foliage it much resembles our Stag-horn Sumach, although the leaflets are narrower, but the flowers are in slender few-flowered clusters pendulous in fruit; and the drupes covered with a thick coat of the pale waxy exudation, to which this species owes its name and value, are much larger. Rhus succedanea will, no doubt, flourish in the southern states, and it is not improbable that it will prove hardy as far north as Philadelphia; it will certainly never be grown, however, in the United States for the wax it might be made to yield, and as an ornamental plant, while it is, of course, interesting, it is inferior to the American Sumachs.

Rhus trichocarpa, which, so far as I know, is not in our gardens, should be cultivated for the extraordinary beauty and brilliancy of the leaves in autumn, when they assume the brightest scarlet and orange tints. It is a slender tree, sometimes twenty or twenty-five feet high, and very common in the forests of Yezo and on the mountains of central Hondo. The leaves are eighteen to twenty inches long, with dark red puberulous midribs and broadly ovate, long-pointed, short-stalked, membranaceous leaflets, slender panicles of flowers, which open in July, and pendulous fruit-clusters with large, pale, prickly drupes ripening in August or early in September. Neither the flowers nor fruit are attractive, and there is nothing very distinct in the appearance of this tree, except in the autumn, when, however, it is so beautiful that if it succeeds here I believe that it will prove one of the best introductions of recent years.

Of the poisonous species of Rhus I did not see the pinnate-leaved Rhus sylvestris, which is said to be a small shrub and a native of the southern part of the empire; in the Hakone Mountains, where it is reported to grow, I looked for it in vain; but our Poison Ivy is one of the common plants in all the central parts of Hondo and in Yezo, where it grows to its largest size and climbs into the tops of the tallest trees. The leaves of the Japanese plant are larger than they usually appear on the American form; they are thicker, too, and more leathery, and turn in the autumn to even more brilliant colors, often to deep shades of crimson, which are rarely seen on this plant in America. In the autumn no other vine is so handsome in Japan.

Japan is remarkably poor in arborescent Leguminosæ, with only three species in three genera, while here in eastern America there are twenty species in a dozen genera. The best-known Japanese tree of the family is Albizzia Julibrissin, a small Mimosa-like tree which grows from Persia to Japan, and through cultivation has become naturalized in our southern Atlantic states and in most other warm, temperate countries. Familiar now in this country is Maackia Amurensis, which, introduced many years ago from the valley of Amour, is now sometimes cultivated in northern gardens. This little tree, which, under favorable conditions, rises occasionally to the height of thirty or forty feet, is common in all the forest-regions of northern Japan and is not rare on the mountains of central Hondo. The Japanese form produces larger and more numerous flower-spikes and larger fruit than the mainland tree, as we see it in this country; and it is not improbable that it will prove a more desirable garden-plant. In Yezo, the wood, which is hard, close-grained and pale brown in color, is manufactured into many small objects of domestic use and is considered valuable.

The third Japanese leguminous tree is Gleditsia Japonica, which, in most essential characters, much resembles our North American Gleditsia triacanthos, but the leaflets are broader and more lustrous, and the bark, instead of being dark brown, is quite pale. Although it does not grow to the great size of the American species, the Japanese Gleditsia is, perhaps, a more beautiful tree.

Gleditsia Japonica * (see figure 27 on page 165) is a tree sixty to seventy feet in height, with a trunk occasionally three feet in diameter, stout branches horribly armed with flattened, often branched lustrous red-brown spines, two or three inches in length. The branchlets are remarkably stout as compared with those of our species, and are covered with bright green bark, marked with orange-colored elevated lenticular spots. The leaves are ten to twelve inches long, with broad ovate-acute remote leaflets, or they are sometimes bipinnate as on our species, with smaller leaflets. The male flowers (the female inflorescence I have not seen) are very similar to those of Gleditsia triacanthos, although they are rather larger and the racemes are longer and less closely flowered. The pods are compressed and thin-valved, like those of our northern tree, ten or twelve inches long and an inch and a half broad, but the seeds, instead of being placed close to the ventral suture of the pod, are sometimes nearer the middle and surrounded by the pulp, which is more abundant in the Japanese than in the American species. This pulp is used by the Japanese in washing cloth, and long strings of the pods are displayed for sale in many towns of northern Japan, where Gleditsia Japonica grows, not very abundantly, according to my observations, near the banks of streams at the sea-level. It is common and reaches its largest size on the banks of the Kisogawa and other streams of central Japan, at an elevation of some two thousand feet. Here it grows sometimes close to the water's edge, in rich, humid soil, but as often is found at a considerable distance above the water, growing on dry, gravelly slopes. By Rein this tree is said to be often planted in the neighborhood of villages in Japan, but I saw no specimens, except in the scientific gardens of Tōkyō, which did not seem to be growing naturally.

As an ornamental tree, Gleditsia Japonica, as it appeared on the mountains of Japan, is a more beautiful tree than any of the species known in cultivation, and it may be expected to become a valuable addition to the list of exotic trees suitable for the decoration of the parks and avenues of the United States and Europe. *C. S. S.*

Foreign Correspondence.

London Letter.

BAUHINIA CANDIDA.—This is the best stove-plant now in flower at Kew. It is an erect shrub six feet high, branched above, with bright green bilobed leaves as large as a child's hand and numerous axillary flowers. These are nearly four inches across, in shape exactly like a Pelargonium or Fraxinella, pure snow-white, with reddish styles, and they are deliciously fragrant. This plant is a native of southern India, the Kew specimen having been raised from seeds

* Gleditsia Japonica, Miquel. *Prol. Fl. Jap.*, 242.—Franchet & Savatier, *Enum. Pl. Jap.*, i., 114; ii., 325.—Maximowicz, *Mél. Biol.*, xii., 452.

received from Sir Mount-Stuart Grant-Duff when Governor at Madras in 1883. There are not many Bauhinias of garden fame, beautiful though the majority of them are in tropical countries. B. candida is far and away the best of those I have seen, and should it prove floriferous under cultivation, it can hardly fail to become a popular stove-plant. According to botanists, B. candida is only a form of B. variegata, which is described by Sir Joseph Hooker as "an exceedingly common plant throughout India, but more often seen planted than indigenous; it forms a small tree, six to twenty feet high, and when covered with blossoms, which appear in March, it resembles a gigantic Pelargonium, and is, indeed, a glorious object. . . . The flowers vary greatly in color, from white, variegated with yellowish green, to rose, variegated with crimson, cream color and purple." I quote this from the *Botanical Magazine*, t. 6818, where B. variegata is figured from a plant which flowered in the Palm-house at Kew in March of 1884. B. candida is recorded to have been cultivated at Kew in 1777, but it does not appear to have flowered or attracted the attention of horticulturists then.

Senecio sagittifolius.—This plant is described in my notes on the foreign new plants of last year (see page 90). It is now flowering in a greenhouse at Kew, and is a most beautiful plant, even as represented by the Kew specimen, which is small compared with what this species becomes. The bold leaves are of a rich deep green, and the flowers are creamy white, with golden disks, and of good form and substance. It is a plant of the greatest interest and promise for the garden.

Bomarea frondea is a handsome climber for the warm greenhouse. There are two specimens of it trained against the roof of the succulent-house at Kew, their stems ten or twelve feet long, being now terminated by elegant clusters of orange-red Alstrœmeria-like flowers. Bomareas, when happy, are of first-rate value for the conservatory. They are in flower with us almost all the year round.

Caraguata cardinalis was shown and certificated last week as a new plant, although it is really an introduction of 1880, when a figure and description of it were published by Monsieur André, in *Illustration Horticole*. In 1882 a plant of it flowered at Kew, having been obtained from Monsieur Linden, who distributed it. Mr. Baker reduces it to a form of C. lingulata, an old garden-plant which is in the West Indies and some parts of South America. Caraguatas are very similar to Tillandsias in habit and foliage, differing only in having a gamopetalous corolla. The charm of the cultivated species of Caraguata is in their large imbricating leaf-like bracts on the flower-scape and which are colored bright red. In well-grown plants of some of the kinds, such as, for instance, that called C. cardinalis, the bracts are six inches long and nearly two inches broad, and they extend up the flower-scape nearly a foot. These plants are among the most ornamental of Bromeliads.

Clivia Scarlet Gem.—This is an exceptionally fine variety, large in truss and with well-formed, large flowers, colored rich, deep orange, very nearly dark enough to be called red. It was exhibited last week by Messrs. B. S. Williams & Son, and was certificated by the Royal Horticultural Society. The value of the Clivias as spring-flowering, greenhouse or stove plants is now almost universally recognized. The great desideratum is some variety of color in their flowers, for, notwithstanding the many names and glowing descriptions of them, we have not yet anything very different in color from the sole progenitor of the whole of them, namely C. miniata, which was introduced from Natal by Messrs. Backhouse, of York, in 1854. The type, as well as the varieties, are most accommodating in the garden, thriving almost equally well in a hot stove, a warm greenhouse, or even an ordinary conservatory. Good cultivation has a most marked effect on the size and color of the flowers of these plants.

Corylopsis pauciflora is a pretty addition to the cultivated Japanese Witch-hazels. It was shown in flower by Messrs. J. Veitch & Sons last week and was awarded a first-class certificate. The leafless, twiggy branches were laden with yellow flowers, the plants being quite effective enough to be grown in pots for the conservatory in early spring. It is quite hardy. [For an illustration of a fine specimen of this plant, grown in the garden of Dr. Hall, Bristol, Rhode Island, see Garden and Forest, vol. v., p. 342.—Ed.]

Fritillaria aurea, a dwarf species with handsome yellow flowers, spotted with black and sweet-scented, was shown by Mr. T. S. Ware and obtained a certificate. The forms of F. meleagris are represented by a delightful group grown in pots in the conservatory at Kew, where, mixed with yellow Narcissi, they are a great attraction. Fritillarias are a much-neglected genus of hardy plants; the forthcoming paper on them, by Mr. D. Morris, of Kew, is therefore likely to win for the genus the attention from cultivators which it undoubtedly deserves.

Scopolia Fladnichiana.—This is a new addition to the genus, and it was shown in flower last week by Mr. George Paul, who says it is a native of central Europe and that it is hardy on his rockery at Cheshunt. It is a robust-growing plant, about a foot high, with petioled ovate-lanceolate green leaves and axillary pendent bell-shaped flowers, half an inch long and colored dull yellow. The flowers are not hurt by frost. The genus is a small one of some three or four species, one of which is Japanese, another Himalayan. The latter, S. lurida, is an old garden-plant which has been called a Physalis and also a Nicandra. The genus is closely allied to Henbane (Hyoscyamus) and Atropa. There is a figure of S. Fladnichiana in the *Journal of Horticulture*, p. 241.

Blue Primroses are one of Mr. G. F. Wilson's hobbies, and he has been so successful in breeding them that he has now numerous varieties of P. acaulis and P. polyanthus which are distinctly blue in shade. He showed a basket of about fifty seedlings recently, all descendants of the one called Scott Wilson, which was raised by him several years ago. This fact is interesting as showing that the fixing of the blue shade is so far accomplished as to repeat itself from seed. A race of blue Primroses as hardy and easy to manage as the common yellow Primroses is something to look forward to, and it has very nearly been reached by Mr. Wilson.

Sisyrinchium grandiflorum is a beautiful hardy spring-flowering Irid, for which we are indebted to North America, but, beautiful and easily managed though it is, very few cultivators here make any use of it. Patches of it in a sunny spot on the rockery or little beds of it in sheltered positions on the lawn are very pretty at this time of year. The white variety, which, I believe, originated in the Edinburgh Botanic Gardens, is equally charming. For cultivation in pots to decorate the conservatory in early spring both of these plants may be recommended. I have lately seen some most delightful tufts of them, which suggested tufts of grass crowded with nodding blue Campanulas, the flowers being purple or white and borne on slender stalks a foot high.

Rhododendron racemosum, or the plant shown by Messrs. Veitch & Sons under this name last year, is now flowering nicely in a cold house at Kew. It is a pretty little plant, an excellent subject for the alpine garden, its height being only about six inches and its flowers pretty little white and rose bells, clothing the branches in racemose fashion. The flowers are fragrant and lasting. There is a plant of it also in flower in the Edinburgh Botanic Garden. A figure of it will shortly be published in the *Botanical Magazine*, when, no doubt, the question of its name will be decided.

A collection of flower-branches of hardy trees and shrubs, which bloom in early spring at Kew, was a special attraction at the last exhibition held by the Royal Horticultural Society in conjunction with the fortnightly meeting. Kew is exceptionally rich in hardy, spring-flowering plants of all kinds, and so charming are these to visitors generally, that special attention is now paid to this, one of the most

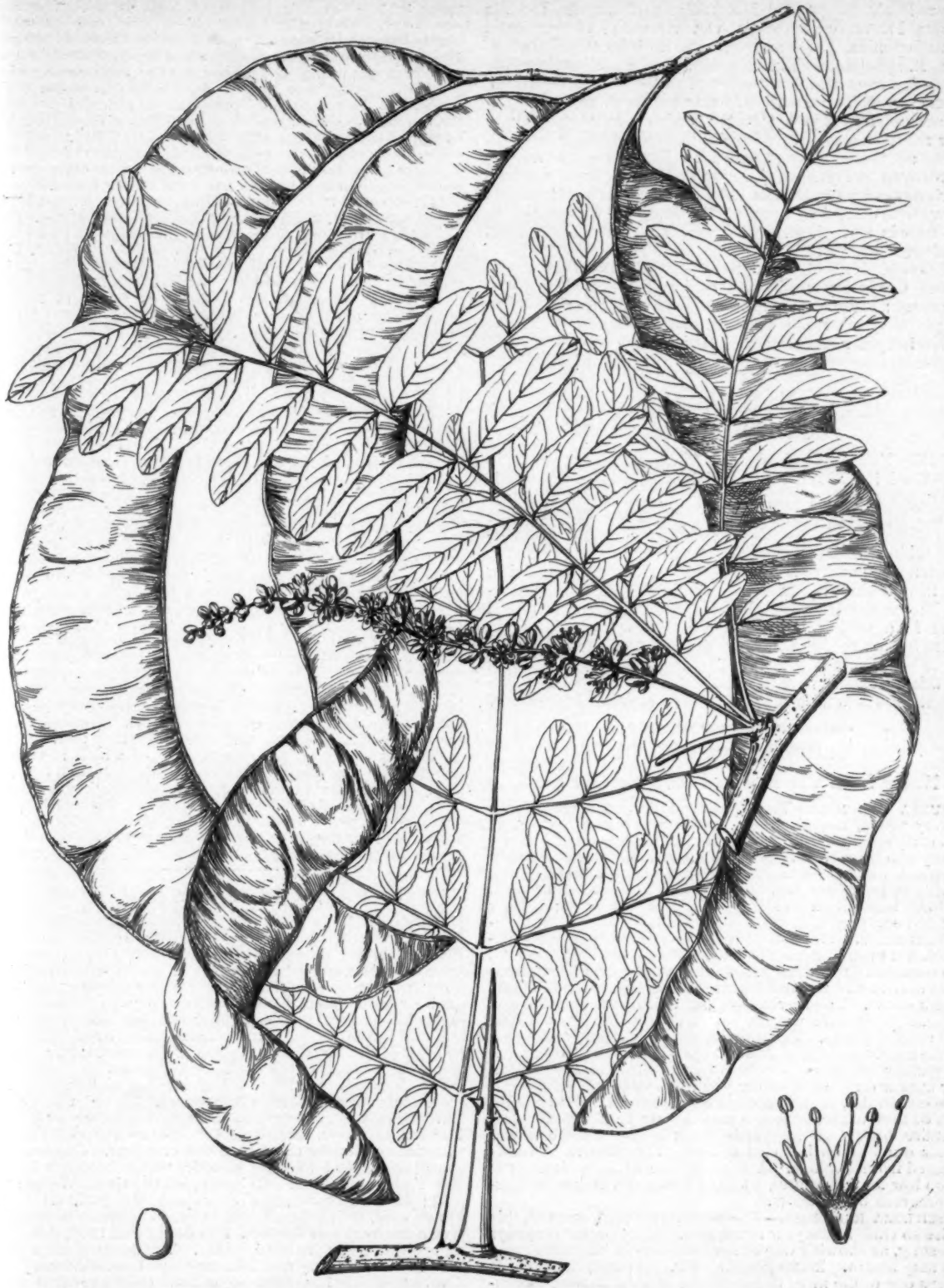

Fig. 27.—Gleditsia Japonica.—See page 162.

delightful departments of the garden. The plants exhibited in flower were the following: Acer rubrum, A. Neapolitanum, Amygdalus communis, A. persicoides, Berberis Japonica, Cassandra calyculata, Daphne Mezereum and its variety album, Dirca palustris, Erica carnea and its variety alba, Andromeda Japonica, A. floribunda, Forsythia sus-

pensa, Lonicera Standishii, Nuttallia cerasiformis, Parrotia Persica, Prunus cerasiformis, var. Pissardii, P. divaricata, Pyrus Japonica, Ribes sanguineum and its variety glutinosa, R. spectabile, Salix caprea, S. cinerea, S. mollissima, Rhododendron altaclerense, R. fulgens, R. Nobleanum, R. præcox, R. Thomsonii. A bare list, such as this, is the thinnest of suggestions, simply; I wish I could convey to your readers an adequate idea of the telling effect of such plants as these when planted in large masses among dark-leaved evergreens, in shrubberies, or even used as specimen groups on lawns. Add to the trees and shrubs the wealth of spring-flowering herbaceous plants, bulbs, etc., now in all their glory, and one has material for most exquisite garden effects.

Daffodils, Hellebores, Chionodoxas, Scillas, Dog's-tooth Violets, Grape Hyacinths, Anemone pulsatilla, Saxifrages, Primroses; these are some of the most striking of the humbler plants which come before the swallows and make the garden in spring as delightful as it is at any season.

London. *W. Watson.*

Plant Notes.

Clematis indivisa.

THIS New Zealand plant, known ever since Captain Cook in the last century visited its native islands, is very rarely seen in gardens, at least in those of this country, although it is one of the best plants we have for the decoration of cool greenhouses, where it produces handsome white flowers in March. Our illustration on page 167 represents the end of a flowering branch, much reduced in size, from a plant in Mr. Hunnewell's collection at Wellesley, Massachusetts, where it is planted at the end of a cool house in a well-drained border, and now occupies 2,500 square feet of roof-space. The capacity of Clematis indivisa to bear flowers when well treated appears in the fact that this specimen bore at one time, according to a careful estimate, not less than seven thousand expanded blossoms.

Cultural Department.

Notes from the Harvard Botanic Garden.

BAUERA RUBIOIDES.—The flowers of this evergreen shrub are very pretty, though small, and they are freely produced from early spring until late in summer. It was introduced a century ago from New South Wales. Hooker, in his *Flora of Tasmania*, informs us that it is very abundant in that country, growing in poor, wet soil, and that it is somewhat variable. One form is about six feet high and of rambling habit; another erect and compact in growth, while a third is dwarf, with decumbent stems. The second is the one most frequently cultivated, but even that form is comparatively scarce in gardens. With occasional trimming the plant makes a neat bush, from two to four feet high, the deep green leaves closely arranged on dark stems. The leaves have the appearance of being oblong and disposed in whorls, but in reality they are ternate, sessile and opposite. The flowers, with petals pink and white, are like miniature single Roses, almost an inch in diameter, with yellow stamens prominently clustered in the centre. They appear on the tips of the young shoots and branchlets, borne on slender, slightly drooping pedicels an inch in length. Much of their attractiveness is due to their nodding habit, for the entire beauty of the petals is not seen until the flower spreads out like an inverted saucer. This Bauera is easily increased from cuttings. A temperature of forty degrees is not too low for it in winter, while in summer it makes satisfactory progress out-of-doors.

PASSIFLORA RACEMOSA.—The occurrence of flowers on this species so early in the year is not rare, but the event is always interesting, as showing one of several ways in which the same plant may bloom. Better known as P. princeps, the plant is perhaps one of the most decorative of stove climbers, blooming ordinarily during the summer months, and producing the flowers singly at the joints of the young growths. Sometimes, however, they appear on the same shoots in terminal racemes, and now we have the racemes, absolutely destitute of foliage, pushing from the hardened old stems. P. racemosa has long been an inhabitant of our greenhouses, since 1815, when it was brought from Brazil. The leaves are large, bright green, and either pandurate or trilobed, most frequently the latter. It blooms freely in summer, and the flowers, measuring from four to five inches in diameter, are bright red, with the short rays of the corona white or purplish. Being free of growth, the roots require a large space, and the soil should be moderately rich and porous. It thrives most satisfactorily when trained to a rafter, though in exceptional cases succeeding fairly well on bright pillars and walls. The old stems may be tied in quite rigidly, but the younger ones should be allowed a good deal of their own way, as they are then more ornamental and flower better.

PITTOSPORUM UNDULATUM.—This is one of those plants which are never showy, but always satisfactory and pleasing. It is an Australian evergreen shrub, of compact habit and amply furnished with deep green, wavy leaves of oblong outline. Under pot-culture it is usually seen from two to four feet in height; but where the climate admits of its being permanently grown in the open garden, and it will survive three or four degrees of frost, it attains twice that size. Bursting into blossom with the first sign of spring, the white Jasmine-like flowers, borne in short terminal clusters, cover the plant completely, and fill the air with their grateful fragrance. In our latitude it is most useful in a cool greenhouse, serving as a foil to the bright colors of Acacias, Azaleas and the like.

TROPÆOLUM TRICOLORUM.—This is, perhaps, the best of the useful tuberous-rooted Tropæolums. Indeed, the greenhouse that is without one or more representatives of this section lacks a striking element in the production of bright effects. T. tricolorum is a climbing plant with very slender stems. The small light green leaves have filiform petioles an inch long; they are peltate and divided into from five to seven obovate segments. The flowers, borne on long pedicels, are axillary, and about an inch in length. They are of a rich orange-scarlet color, tipped with black and yellow, and have been compared to a tadpole in outline, the erect, tapering spur corresponding to the tail of that animal. Commencing to flower in January, it continues in full bloom more than two months, and adds a rich glow of color to its surroundings. A trellis of some kind is needed for the support of the stems, one of globular form being tasteful and serviceable, though otherwise the design may be such as fancy or convenience suggests. The tubers of this and similar species should be kept quite dry in summer, and about the middle of September they may be turned out and repotted, using a mixture of loam, leaf-mold, old manure and sand in equal parts. The plants may then be set in a sunny greenhouse, the temperature of which is never allowed to descend lower than forty-five degrees, and here, with ordinary attention to watering and training, they will in due time make charming objects. T. tricolorum is usually propagated by means of seeds, but tubers form readily along the young stems if they are brought in contact with the soil.

Cambridge, Mass. *M. Barker.*

Notes on Carnations.

CARNATIONS, which have been blooming steadily through the winter at a temperature of fifty to fifty-five degrees, Fahrenheit, are now somewhat off crop. Such, however, as have been held as low as forty-two and forty-five degrees are now at their best, giving large flowers of excellent color. Growers are beginning to realize that it pays to clean the plants of dead leaves and weeds, even if they are healthy and vigorous, and to stir the soil gently. All useless growth should also be cleaned out, to admit light and air more freely, as well as to check the development of fungal diseases.

The Carnation is a flower for all seasons and purposes, and good Carnations are always in demand. The aim of growers and raisers is to get perpetual bloomers as nearly as possible. The fact, however, that this is the off-season is proof that most varieties now under cultivation are croppers. Growers hereabouts are agreed that the varieties which hold out best are Mrs. Fisher and Lizzie McGowan, white; Grace Wilder, rose-pink; Hector, scarlet, and Ferdinand Mangold, crimson, if grown cool, as it always ought to be. Daybreak continues to give a few very fine flowers. It is doing well here, though the reports generally are unfavorable. The blooms are a beautiful blush shade, very much in the way of the old Mrs. Jolliffe, a variety which has been in cultivation more than twenty years, and never until now superseded. No good reason can be given why location affects Carnations. Mr. Dorner has frequently stated that having had poor success with a majority of the standard kinds he has raised a set of his own, including all the market colors, and these answer his purpose better than any he can buy. The fact that Carnations differ in different

localities may account for the conflicting opinions of growers of any one variety.

Among the recent varieties of rose-pink, which it was thought would supersede the old Grace Wilder, none have filled the necessary requirements. Many produced fine large flowers of exquisite tints and fine form, but they are either too coarse in growth, not floriferous enough, weak in the stems or lack lasting qualities. Fred. Craighton gives fine large flowers, but is late. The flowers of Aurora are of fine form, but are thin. Nicholson, a handsome rose-pink, is not yet in cultivation; it comes nearest to John Thorpe's ideal of any I have yet seen. The flower is often quite three inches across, and, although very double, the calyx never bursts. In shade it is similar to Tidal Wave, bright rose-pink, with a touch of red in it.

Fig. 28.—Clematis Indivisa.—See page 166.

Fancy bizarres have a select set of buyers and are fast increasing in favor. The best are American Flag, scarlet, on white ground; Paxton, pink, on white ground, and Mary Fisher, violet, on yellow ground. Joseph Tailby, the veteran grower and pioneer raiser of the true American type of Carnation, has at last succeeded in raising a pure yellow perpetual in Henrietta Sargent. Since 1882, when Mr. Tailby had a very fine border yellow in bloom, he has selected the seedlings which showed the perpetual type and crossed them with some of the poor French yellows; he managed at last to get the vigor of the border variety incorporated with perpetual characters. He has also an excellent striped-yellow, the brightest and best I have seen, free and perfect in form and bright in color. The constitution is all that can be wished. This has been named Belle Hunnewell. Golden Triumph has been doing duty for a yellow up to this time, and where it has done well has proved very profitable. It is not a pure yellow, being flaked slightly with red; it is, however, a very pleasing shade and is a favorite in the market. It is, moreover, a very free bloomer, an important consideration where flowers are grown for market.

The fact that especial care in selecting stock helps to improve varieties is everywhere evident, from the fact that it takes two years to give new varieties a proper test. In propagation for distribution, every available cutting is taken; the consequence is, a very small percentage of plants are in a thrifty condition during the first year. Side-shoots from flowering stems make the best cuttings and grow into the best plants; by care in this direction the stock of old varieties may be improved and held up to a good standard.

The summer-blooming Marguerite Carnations are pleasing and strongly resemble the florists' Carnations; but by comparison they lack enduring qualities, as well as refinement. Growers in this locality are looking for varieties which will bloom out-of-doors in summer. Mrs. Fisher, white, and Hector, scarlet, gave satisfaction last year, and several additional kinds are to be tried this summer. The plan is to strike cuttings in January, pot two in a pot and grow along until May, when they are planted outdoors, given one pinching and then allowed to bloom, which they will do in July.

Wellesley, Mass. *T. D. Hatfield.*

The Best Beans.

FEW vegetables have been hybridized or selected with greater care than the Bean, and varieties suitable for several purposes have been developed, until little improvement now seems possible. Among Snap-beans, the new yellow-podded wax varieties, which are almost cylindrical in shape, solid yet tender, and of the finest fibre and flavor, are quite superior to the old-time flat, green-podded and stringy varieties. Among the best varieties are Wardwell's Kidney Wax, Yosemite Mammoth Wax, Golden Wax and Perfection. Of Shell Beans, the best are Dwarf Horticultural; Golden Cluster, which is very productive and bears flat beans about two-thirds as large as Henderson's Bush Sieva, meaty and well-flavored; Hemisphere, a bean almost round, but solid and of extra quality, half of it being light brown in color, splashed with red. This color would detract from its value as a market variety, but in the process of cooking the color to a great extent disappears, so that it is one of the very best for the kitchen-garden. On the station grounds, as the main experiment crop for the past four years, a pure white bean has been grown which has proved of extra quality and productiveness. It is very hardy and is proof, thus far, against the anthracnose, so prevalent throughout this section. It has been called the Hatt Bean, after its originator, but I am not aware that it has been offered for sale under any name, although it should be more generally known.

The search and selection necessary for a true Dwarf Lima Bean has been successful, and it would now seem hardly necessary to grow the pole Lima Bean. The latter come to maturity a trifle earlier than the bush type when both are planted together, it is true, but the dwarf varieties may be started earlier, either in common beds, or in inverted sods, or in pots in the kitchen or greenhouse. When planted out they can be protected from early or late frosts with ease so that the season

of bearing can be lengthened out by the same method. Cheap cloth protection or wide boards can be used against frost. Two distinct types of these beans are now offered by seedsmen, Burpee's Bush Lima, with large flat pods, well filled with beans, and resembling the old garden Lima, and Dreer's or Kumerly's Dwarf Lima, with shorter pods and beans resembling in shape Dreer's Improved Lima. Either of these can be grown in the kitchen-garden, and for market they will certainly crowd out the climbing varieties, since many more can be planted on the same area and no expense is necessary for poles.

Geneva, N. Y. *C. E. Hunn.*

Winter Protection.—My orchard and small fruits have come through the winter well, and this is a good time to recall some precautions that I have found useful. In a climate where Peaches and Apricots fail out-of-doors we can protect the buds in several ways, but the most satisfactory plan is to keep a few dwarf trees in tubs in a cold greenhouse which is used for Lettuce and early vegetables, and they will give fine fruit in July. Such trees might be set in a light room in a barn, and gently watered once or twice in the winter, as the fruit-buds will endure zero weather, although they are injured by sharp alternations of cold and warmth. They can often be kept in a cool light cellar. To keep my Quince-trees from drying north-west winds I put up a solid board-fence in autumn, taking it down again in April. With this protection the trees bear well, but the trunks of the young ones should be bound with straw or hay for the winter. Clean sawdust, or sawdust after being used in the stable for bedding, I use for covering Strawberries. It is put on thickly enough to leave the larger leaves uncovered, and it should be allowed to remain in the spring to hold up the berries from the earth. When land is well drained there is no danger of Currants and Raspberries "heaving out," but where there is danger the use of stones about the plant is efficacious. The use of coal-ashes is invaluable about fruit-yards, but one of the best purposes it serves is as a winter mulch. Raspberries trained to a single wire about four feet high and stapled to posts suffer no damage from heavy snows.

Clinton, N. Y. *E. P. Powell.*

The Forest.

The Forests of Ne-Ha-Sa-Ne Park in Northern New York.

FROM a report recently prepared by Mr. Gifford Pinchot, on the condition of a large forest-estate in the Adirondacks, we are permitted by the author to print the following extracts, which are of general public interest, as Mr. Pinchot's conclusions and suggestions with regard to the management of the property are applicable to similar forests in many of the northern states.

"Except for local variations and the greater proportion of the soft timbers in the western and northern part," Mr. Pinchot writes, "the forest over the whole park is approximately the same. The high ground is covered by a magnificent growth of hard-wood timbers, thinly interspersed with Spruce. Beech is here the most common tree, with Birch and Maple closely second. The swamps and low grounds are chiefly occupied by Balsam, Tamarack, Hemlock and White Pine. To these, which have been mentioned in the order of frequency, are to be added in the same order, Cherry, Poplar, Cedar and Ash. Spruce and Pine are at present the most valuable timbers. It seems likely that in future Birch will be the most important tree. The silvicultural value of the soil has been reached by the accumulation of mold from the waste of many generations of forest-trees. The ground itself is rocky and not rich, and its sustained vigor depends entirely upon the preservation of the humus or duff, with which it is covered almost everywhere, sometimes to the depth of six feet. Humus disappears gradually upon free exposure to light and air, and may be entirely consumed by forest-fires. Hence fire and reckless cutting are especially destructive to the Adirondack forests, entirely apart from the important loss which they occasion in standing timber and the growth it would have made during the years in which the burnt area is slowly reclothing itself with forest."

Want of space compels us to pass over the description of many of the trees found in the Adirondack forests. Of the White Pine, he says that it "grows on the west and south-west slopes of the ridges and on the borders of swamps in mixture with Spruce and Balsam. It would be exceedingly advisable, however, to defer this removal, at least in part, until the reason can be discovered why the enormous number of cones produced by this tree do not result in a plentiful young growth. It is possible that the conditions favorable to the germination and growth of the Pine-seed may be found to be producible at very little cost, so that it may be possible to assure a large proportion of this valuable timber in the next crop."

In discussing the age of the trees found in this forest, Mr. Pinchot points to the fact that "young trees are almost always seriously retarded in their growth by the heavy cover of the older specimens. For this reason the rings of annual growth formed during early life are much closer together than the later ones. In endeavoring to count the rings of stumps standing on the right-of-way near Lake Lilla, I was often unable to separate those of the first fifty or one hundred years, even with a glass. I found no Maple or Birch whose inner rings could be counted, and but one Beech. This tree was twenty-eight inches in diameter at four feet from the ground, and somewhat over two hundred years old. A Hemlock of seventeen inches diameter on the stump was two hundred and ninety-two years old. Spruce-stumps, on which all the rings were far enough apart to be counted, were also exceptional. One butt log, with a diameter of seventeen inches, was two hundred and eighteen years old. This tree had evidently been stunted by the shade of older hard woods. It is remarkable that the finest Spruce, that on the hard-wood ridges, must have passed through this period of repression before making its principal growth. By cutting away the merchantable hard woods, which are suppressing the young Spruces over a large portion of the park, their rate of growth may be enormously increased. For example, two young Spruces, eight inches in diameter, which had grown among others of the same age, and, therefore, with a comparatively abundant supply of light and air, were but fifty-two and sixty years old, although almost twice the diameter of another tree one hundred and twenty-one years old.

"The power of natural regeneration of all the trees which I have mentioned, with the single important exception of White Pine, seems to be amply sufficient for all the purposes of forest-management. The presence of this reproductive power is of the greatest importance. It puts aside at once the difficulty and expense of planting and insures a steady improvement in the condition and value of the forest.

"The vigorous and abundant young growth makes it possible to remove mature trees without injury to the forest, and under proper handling will insure the continuance of its productive power. The constant character of the forest, even in its changes, lends itself easily to the needs of forestry, while the presence everywhere of mature trees over the young growth makes it possible to cut and yet increase the annual growth of wood from year to year. This steady increase in the value of the forest under forest-management is one of the strongest reasons for its introduction. Forest-management will add constantly to the proportion of valuable timbers in the forest, by judicious cutting, without a corresponding abatement in the amount of lumber produced. In other words, for a few years the forest will yield slightly more under ordinary lumbering than it will under forest-management, because in the latter case greater care is used, and many trees which would otherwise fall at once must be allowed to stand. After that time the revenue from forest-management will surpass that from lumbering, and will go on increasing indefinitely, while the returns from lumbering methods will as steadily diminish. The profits will certainly pass their lowest point during the first twenty years, and probably during the first ten. Thereafter they will rise with the rise in prices and the growing productive capacity of the forest. Timber-land as productive as this, as safe from fire, and as accessible to the centres of consumption by rail and water, is, in my judgment, one of the best of long investments."

Mr. Pinchot recommends that this forest should be carefully examined and mapped with a working plan made "with the supposition that it will be best to cut over the same ground a second time at an interval of from twenty-five to forty years." Then he would "divide the forest into as many parts as there were years in the period decided on, and assign the land most in need of cutting to the first year, the second to the second year, and so on; but in such a way as to make the annual production of timber as uniform as possible."

The forest managed in this way is expected "to yield a steady annual return, which ought to constitute a fair rate of interest on the investment," and "to increase the value of the forest by favoring the better kinds of trees, so that the market value of the land, as well as the return from the lumber, would increase steadily from year to year."

In conclusion, Mr. Pinchot discusses Lumbering versus Forestry, as follows: "The statement is often made that it is possible to lumber the same land a second and then a third time at intervals of fifteen or twenty years, and get as good a cut

from it as at first. In exceptional cases this is true. The probabilities are, however, that the second and third cuts were as good as the first in a pecuniary way, and not otherwise, since during the years which intervened the diameter of merchantable trees has steadily diminished, while the price of lumber has increased. Forestry provides not merely for sustaining the proportion of the more valuable woods, but for increasing it.

"The ordinary methods of lumbering are exceedingly careless of the life of all the young growth which may happen to stand about the old trees. Such carelessness is not only destructive of the future value of the forest, but also increases the danger of fire by the presence of a quantity of dry saplings which forest-management would have allowed to grow. Young green trees are the greatest protection a forest can have against the spread of fire. Hence forest-management tends distinctly to keep fire out, as compared with the methods of ordinary lumbering.

"Lumbering yields a slightly larger revenue than forest-management, but in the end falls far behind it. It increases the danger from fire, tends to deprive the forest of its more valuable timber and lowers its capital value. Forest-management does none of these things."

Correspondence.

Concerning Raspberries.

To the Editor of GARDEN AND FOREST:

Sir,—I last year planted a small area of Raspberries, and this spring they are hardly more than slender branches, which trail over the ground to the length of five or six feet. Why do they not stand erect? They are planted on ordinary soil. Do they need any special soil? I am setting out some more; how far apart shall I place them, and how long will they last in good bearing condition, if they ever reach such condition?

Plainfield, N. J. *S. A.*

[Our correspondent has evidently planted Blackcaps, which have a trailing habit during their first season's growth. The growth this year will, no doubt, be stronger and sufficiently erect. Space would be economized and the plants would be more secure if the young canes were staked and tied this year before they break down of their own weight. The present plants are probably from one and one-half to two feet high, with strong branches which run over the ground, and these should be cut off to within a foot or eighteen inches of the main stem. The new canes of this year should be pinched off, say, three or four feet high, to induce branching and prevent unwieldy growth. Blackcaps should have abundant room. Four and a half feet apart in the row and the rows six feet apart is none too much space on good soil. Red Raspberries, or those which are propagated from the roots, may be planted three feet by four, and if mulched with stable manure the roots will be kept cool and there will be less need of hoeing, and vitality will be furnished. They should be kept clean, however, and the plants topped in spring to about three or four feet high, according to their vigor, and their branches shortened in to six inches or one foot long. Some varieties sucker inordinately. Three to four canes in a hill are enough and the others should be removed as so many weeds. Raspberries usually develop all their good qualities in any ordinary soil if well cared for, although a light sandy soil is not congenial to them. They readily respond to liberal feeding. Blackcaps have usually done their best when four or five years old, but Red Raspberries, if liberally treated, will remain healthy and will last for many years. —ED.]

Tuberous Begonias.

To the Editor of GARDEN AND FOREST:

Sir,—That disappointment with Tuberous Begonias is common is well known, as you state on page 136, and yet these plants have few equals in usefulness, whether for greenhouse or garden. The disappointments come in this case, as in many others, because the wants of the plants have not been understood. When first introduced, few florists or gardeners had the courage to expose them to our burning suns and drying winds. A few, however, persevered in their cultivation until the fact was established that they not only can endure, but actually delight in our climate. The experience of last season, which was one of the most severe in point of heat and drought which we have ever known, proved this, and the display on Mr. Griffen's grounds near here last year excelled anything I have ever seen in the low temperature and moist air of England. The point to emphasize in regard to the cultivation of these Begonias is that they must not be treated as ordinary bulbs or tubers, but, so to speak, as plants. Amateurs have been led to believe that the tubers could be kept dormant all winter, like bulbs of Tigridia or Gladiolus, and then be planted out in the same way in spring. This is the mistake which has caused so much disappointment, for the tubers will not endure so long a rest, and they cannot be exposed for much time to the air without having their vitality impaired. They must be kept in dry earth or sand in the winter until they show signs of growth, which will be as early as the 1st of March, and they should at once be started rapidly. After the eyes are developed the tubers may be divided, so that each eye will make a plant; then they are to be treated in all respects as greenhouse-plants, and grown on steadily until the time for planting out, which is not earlier here than the 1st of June, since these Begonias are sensitive to cold, but not to heat. By June the plants will be six inches high and proportionately stocky, and such plants will make a fine display all the season, no matter how high the temperature may be. On Mr. Griffen's grounds last year the strong plants which were first set out grew vigorously, while the young stock from seed, sown too late to make strong plants, did not prove satisfactory. If Tuberous Begonias are to be grown from seed the seed should be sown early in January, and a greenhouse will be necessary. The amateur, however, can start tubers in any window and grow them on until time to set out.

Floral Park, N. Y. *C. L. Allen.*

Daphne Mezereum.

To the Editor of GARDEN AND FOREST:

Sir,—The beautiful European shrub, Daphne Mezereum, is apparently becoming naturalized in certain parts of this continent. About a year ago a healthy plant, three feet high, was found growing in Seneca Park, an extensive piece of land bought by the Rochester Park Commissioners, situated on the banks of the Genesee River, on the north side of the city. It is not known how it came to be there as there are no cultivated plants in that locality.

On the 10th of August of last year, Mr. Cameron, the assistant superintendent of Queen Victoria Park, showed me a large number of shrubs of this Daphne growing in a wild state on the Canadian side, in proximity to Niagara Horse Shoe Falls, and covered with their scarlet fruit. They grew as freely as the native Viburnums and Cornels around them. It would be interesting to learn whether the shrub has been found elsewhere growing wild.

Rochester, N. Y. *John Dunbar.*

Phajus × Gravesii.

To the Editor of GARDEN AND FOREST:

Sir,—This new hybrid is the result of cross between Phajus Wallichi and P. grandifolius. The seed was sown July 6, 1889, came up December 1, 1890, and bloomed February 12, 1893. The general habit of growth and shape of spike and flower is that of the seed parent; the flower is five inches across; sepals and petals cinnamon color, with white reverses; lip pink-rose on front, with a white pencil-mark extending to apex, the part enfolding the column white, stained with yellow near the base; column pure white. The name is complimentary to H. Graves, Esq., of Orange, New Jersey.

Orange, N. J. *Robert M. Grey.*

Recent Publications.

The Rose. By H. B. Ellwanger. Revised edition. New York: Dodd, Mead & Co.

It was ten years ago when this treatise first appeared, and it at once took its place as the most accurate and valuable manual on the subject that had ever been prepared. The author was especially successful in his plan of grouping together Roses belonging to certain types. This bringing together in separate sections Roses which have in common a few marked characteristics made a more convenient classification in regard to garden qualities than any that had before been devised. The book was especially good, too, in its complete list of Roses which were generally grown; in the careful descriptions of

them; in the painstaking way in which their history had been studied, and in the instructive notes on their value for various purposes.

In his preface to the book Mr. Ellwanger stated that no manual of Roses can ever be final, because not only new varieties, but new classes and types of Roses, are constantly being produced by the introduction of new blood. A noteworthy example of this is seen in the recent hybridizing of the Sweet Brier with well-known Hybrid Perpetual and other garden Roses. Of course, new diseases and new insect enemies, which must be met and controlled, make their appearance almost every year, and even in the cultivation of the flower which has been grown for centuries, new methods, or modification of old methods, are always on trial, and these will always furnish original matter for a new treatise. These considerations will suffice to justify the revised edition of this work which has just been published. In addition to the original matter, the book contains an appendix, which was written by Mr. Ellwanger for *The Century Magazine;* it contains also an introduction by the brother of the author, Mr. George H. Ellwanger; while the catalogue of varieties, which is brought down to last year, contains one hundred and thirty-two more names than the original, making 1,086 all told. Altogether, this is a book which can be heartily commended, and which no grower or lover of Roses can afford to be without.

Notes.

Galanthus Imperati is an Italian Snowdrop, in great favor for its well-shaped pointed buds. It is one of the most robust and largest-flowering of the family. Several forms have been distinguished in cultivation. A specimen of the still rare and expensive Atkins' variety, recently brought to this office by Mr. Gerard, showed a bold flower, with the perianth about an inch and a half long, and borne on a scape nearly a foot tall.

Among the hardy plants wintered in cold frames at the nurseries of Messrs. Pitcher & Manda, we found, on a recent visit to Short Hills, Iris cristata, Bird's-foot Violets, Columbines, Doronicums and many more in admirable flowering condition. But the most interesting of all was the Iris Germanica, which seems to delight especially in this treatment. Masses of these plants placed in large pots last autumn and set in frames are now very effective.

The comparatively new Azalea vervæniàna brought much better prices in this city than any other variety in the market which was sold for Easter decoration. The plant was shown for the first time in this country, we believe, by James Dean, at the spring flower-show at Philadelphia, in 1891, when we spoke of it as a very promising variety with double flowers, richly variegated from white to deep crimson. It is very floriferous, and small plants were entirely covered with blooms.

The English horticultural journals are speaking in praise of the interesting appearance which a mass of many varieties of Dog-tooth Violets are now making at Kew. There is no reason why the various species and varieties, which are always beautiful in form and many of them exquisite in color, should not be more frequently seen in American gardens. They like a little shade and a good peaty soil. The border of a Rhododendron bed is just such a situation as they desire.

The advantages of pruning fruit-trees low, so as to bring the heads near the ground, are summarized as follows, by Professor Rane, in a late bulletin of the West Virginia Experiment Station. Low trees can be more easily pruned and their fruit more easily gathered. They can be more conveniently sprayed, and thus protected against insects and fungi, and are not so liable to break down. The vigor which is required to build up a trunk in a high-headed tree can be used to advantage by the branches and fruit of a low-headed one.

Colonel A. W. Pearson, of Vineland, New Jersey, has grafted on stocks of his Ironclad Grape about one thousand scions of Black Hamburg, Muscat of Alexandria and other varieties of the European Grape. He has not done this with the view of improving the Ironclad, which he still considers the most valuable wine-grape for his purposes, but he uses it as a foundation for the scions of Vitis vinifera, because it is proof against phylloxera, and he has perfect confidence that the European Grapes can be grown to advantage if the copper compounds are used to prevent mildew. The Ironclad is a very vigorous vine, and Colonel Pearson thinks that other vines grafted upon this stock will improve in size and the time of their ripening will be hastened.

According to *Gartenflora*, about fifty German horticulturists have now signified their intention to exhibit at Chicago. The Dresden Association of Florists will make a particularly important display, having asked for 100 square metres of covered space for Camellias, and 300 for Azalea Indica, with 300 square metres of outdoor space for Roses. One Dresden grower will contribute 500 blossoming Azaleas, and Herr Barth, of Pomerania, will send a fine collection of Caladiums. Altogether, Germany promises to rank third among the nations exhibiting, as regards quantity, and it seems to be well content with the spaces assigned, which include 100 square metres under the great dome of the Horticultural Building.

One of the largest fruit-farms this side of the Rocky Mountains, according to a recent bulletin of the West Virginia Experiment Station, is to be found on the foot-hills of the Blue Ridge in Jefferson County, of that state. In 1887 Becker Brothers set out 33,000 Peach-trees, since which time eight adjoining tracts have been added, until the fruit-farm comprises 2,400 acres in one body. The planters have not stopped with Peaches alone, but they have a large area in Grapes, Quinces and Cherries, besides American and Japanese Plums, Apricots, Japan Persimmons, Nectarines, English Walnuts, Italian Chestnuts and Paper-shell Almonds. It will be interesting to learn how well the soil and climate of West Virginia is adapted to some of these fruits.

For more than a week there have been reports of forest-fires in various parts of New Jersey, and a large area of the sandy plains in which the Pitch Pine predominates has been burned over. There is little good timber on these lands except the White Cedar, in the swamps, and much of the so-called forest is merely brush-land or charred Pine-tree stumps. Nevertheless, these lands are capable of yielding a good forest-growth. The annual fires, however, come with such certainty that the owners of such land have little encouragement to devote them to forestry. These fires in New Jersey, as elsewhere, do much damage besides the destruction of timber. They render timber-growing so uncertain that forward-looking men are deterred from venturing upon it, even as an experiment.

In an interesting article in the April number of the *Overland Monthly* it is stated that Pampas Grass was first introduced into the United States in 1848 from South America, where the area covered by this Grass amounts to 1,500,000 square miles. The plumes have been grown for market in California only since 1872. From one tract of twenty-eight acres in that state, and managed by a woman, 260,000 plumes were sold in 1890. The soil and cultural requirements are similar to those of Corn, but as the female plants produce the best plumes, it is customary to propagate by division of roots in order to secure these. No plumes are borne the first year; the second year one plant will bear twenty-five plumes, the third year seventy-five, and for three years following a hundred or more, when the plant deteriorates. In California the Grass grows to a height of twenty feet, and a single stool attains an equal diameter. The principal market for the plumes is in London and Hamburg. Of three leading varieties Hayward is the largest. The standard retail price for a long time was fifty cents a plume; they now retail for from ten to twenty cents each, the grower receiving one cent for small plumes and two cents for the larger ones.

During the Tulip mania which raged in Holland in the seventeenth century, special marts for the sale of the bulbs were opened in the mercantile exchanges of the various cities. Speculators here bought them, in expectation of a sudden rise or fall in prices, just as they buy railroad stocks to-day; and some were enriched to a degree which now seems hardly credible when we consider the character of their wares. Many persons converted their whole property into cash for the sake of buying Tulips, believing that the mania was destined to last forever, and to spread all over the world; and there was scarcely any one, however prudent and serious, who did not now and then take what would to-day be called a "flyer," in Tulips. For a time foreigners were wholly bitten by the Dutch craze, and to such an extent that money flowed into Holland in unprecedented streams. Indeed, in Paris and London, special marts, like those of Holland, were established, and when Tulip-bulbs were quoted in London at $1,000 each, Dutch cultivators naturally felt rich and began to indulge in many unaccustomed splendors of living. When the mania gradually died out the reaction was, of course, correspondingly great; and truly it may be said that never, before or since, has a commodity of such small intrinsic value disturbed, to anything like the same degree, the economic condition of a whole nation.